54. (original) The method of claim 1 wherein said dehydrogenation catalyst is selected from the group consisting of chrome oxide on gamma alumina, platinum on gamma alumina, palladium on gamma alumina, platinum/lithium on gamma alumina, platinum/potassium on gamma alumina, platinum/tin on gamma alumina, platinum/tin on hydrotalcite, platinum/indium on gamma alumina and platinum/bismuth on gamma alumina.

55. (original) The method of claim 1 wherein said dehydrogenation conditions comprise a temperature of from about 300 °C to 700 °C and a pressure of from about 1.1 to about 15 bara.

56. (original) The method of claim 1 wherein hydrogen and said paraffins are fed to said dehydrogenation catalyst.

57. (original) The method of claim 1 wherein hydrogen and said paraffins are fed to said dehydrogenation catalyst at a molar ratio of from about 0.1 to about 20.

58. (original) The method of claim 1 wherein hydrogen and said paraffins are fed to said dehydrogenation catalyst at a molar ratio of from about 1 to about 10.

59. (original) The method of claim 1 wherein said dehydrogenation conditions comprise a residence time effective to maintain a conversion level of said isoparaffinic composition below about 50 mole%.

60. (original) The method of claim 1 wherein said dehydrogenation conditions comprise a residence time effective to maintain a conversion level of said isoparaffinic composition of from about 5 to about 30 mole%.

61. (original) The method of claim 1 wherein said dehydrogenation conditions comprising a residence time effective to maintain a conversion level of said isoparaffinic composition of from about 10 to about 20 mole%.

62. (original) The method of claim 1 wherein said branched olefin composition comprises non-converted paraffins and said non-converted paraffins are separated from said branched olefin composition.

63. (original) The method of claim ~~63~~ 62 wherein said non-converted paraffins are recycled to said dehydrogenation catalyst.

64. (original) The method of claim ~~63~~ 62 wherein said nonconverted paraffins are separated from said branched olefin product by a procedure selected from the group consisting of extraction, extractive distillation, and absorption.